United Nations E/CN.17/2000/3/Add.1

Economic and Social Council

Distr.: General
11 February 2000

Original: English

Commission on Sustainable Development
Eighth session
24 April-5 May 2000

Multi-stakeholder dialogue on sustainable agriculture

Note by the Secretary-General

Addendum

Discussion paper contributed by the International Agri-Food Network*

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* The views and opinions expressed in the present paper are those of the International Agri-Food Network and do not necessarily represent those of the United Nations.

00-29865 (E) 070300

UNITED NATIONS COMMISSION FOR SUSTAINABLE DEVELOPMENT
8th Session, New York

Multi-Stakeholder Dialogue Segment on Sustainable Agriculture

Discussion paper contributed by the
INTERNATIONAL AGRI-FOOD NETWORK (IAFN)*

Topic 1.
Choices in agricultural production techniques, consumption patterns and safety regulations: Potentials and threats to sustainable agriculture.

The agriculture and food business sectors cooperate with farmers and other stakeholders, including governments and NGOs, to develop appropriate technologies that are needed to feed the growing world population. They also provide the support required to put the technology in place throughout the food chain, and to ensure that the consumer is offered healthy foodstuffs. The private sector also takes on a considerable amount of the responsibility for ensuring that farmers get the information they require to optimise the yield potential of their crops and livestock and to protect them from pests and diseases in the most environmentally and socially acceptable manner.

Protecting agricultural and natural resources

The farm support industries recognize that the maintenance of agricultural resources is a global imperative. It is more favourable to the environment and less demanding on resources worldwide to increase productivity on existing land rather than expanding into marginal areas. Fertilizers, crop protection products and enhanced plants allow farmers to increase production per unit area. Fragile ecosystems can be protected and natural habitats preserved, therefore contributing to the maintenance of biodiversity.

The challenge lies in using all the knowledge, experience and technologies available to achieve the most sustainable methods of production. For example, the integration of organic and mineral

* *The International Agri-Food Network (www.agrifood.net) represents associations and federations at international level whose members are suppliers of agricultural inputs and raw materials, individual and family farms, cooperative organizations, food processing and transport businesses, small and medium sized enterprises through to multi-national corporations. This discussion paper has been developed to provide input to the CSD8 Dialogue Segment, and does not represent an official position or statement on behalf of the Network*

sources of plant nutrients, the adoption of suitable animal husbandry techniques, adapted plant varieties and integrated pest management systems are some of the components of the modern approach to sustainable agriculture.

Choice of production methods

Sustainable methods vary, as they have to be adapted and implemented according to the needs of the local conditions, markets, consumer demands and other factors. Integrated farming systems, for example, which employ a mixture of modern and traditional methods and maintain a basic standard of 'best agricultural practices', are increasingly demonstrated to offer the greatest potential to achieve the goals of sustainability: productivity, efficiency and economy, while providing the social and environmental benefits sought by society. Although organic farming methods may be appropriate in certain markets to satisfy particular consumer preferences and tastes, the system is unlikely to be the preferred option for most farmers, because of its limited ability to produce sufficient affordable food for the majority of the world's population.

Furthermore, many developing countries face specific challenges and priorities related to food security, such as soil fertility and water management, access to markets, lack of infrastructure and credit, limiting farmers' production choices. Governments should take an active interest in removing such constraints since agricultural development is often a catalyst or engine for subsequent expansion of other sectors of the economy.

Agricultural transformation generally entails greater crop specialization, production of marketable surpluses through use of purchased inputs (fertilizer, improved seeds, crop protection products), and greater reliance on the market for consumption needs. Changes in the farm sector have a direct impact on other actors who provide production inputs and services (upstream) and output marketing and processing (downstream).

Risk and uncertainty remain major constraints to the adoption of improved production technologies, and on agricultural transformation in general. Farmers, particularly in developing countries, face production, market, financial, legal, institutional, and human resource risks. Commercial farmers in industrialized countries, however, generally have a range of options and institutions available for dealing with these risks: market and weather information services, price

supports, crop insurance, debt restructuring, options and futures markets, production contracts, etc.

All agricultural production represents an intervention to the natural ecosystem in order to provide food and fibre in a productive and cost-effective manner. To be sustainable, production systems must prove their ability to maintain a certain level of productivity without the threat of long-term damage or degradation to the environment or resource base.

To grow healthy crops and animals, most farmers employ rotational systems that include crops of at least two or three species, and often use several different varieties. True monocultural systems are indeed rare, and one of the few most highly developed mono-cultivated crops is paddy rice, which has been stable for hundreds and in some cases thousands of years.

Integrated farming practices

Integrated management techniques are a fundamental component of responsible farm management, including both crop and livestock husbandry, which provide the conditions that create the economic stability and the diverse and healthy environments that make sustainable agriculture a reality.

For example, in Integrated Crop Management (ICM), the emphasis is on preventing rather than curing nutrient deficiencies, pest outbreaks or soil erosion. The farm support industries therefore focus on working with farmers and other stakeholders to develop technologies that increase – in a sustainable way – the productivity of their specific production systems.

Pest management options that fit into the approach of Integrated Pest Management (IPM) include biological, mechanical and chemical crop protection measures as well as biotechnology. Modern pest management is based on prevention, careful monitoring of crop health (pressure from disease, weed and pest populations) and expedient interventions. Natural control processes – through techniques such as crop rotation and encouraging beneficial pest predators – also help to avoid outbreaks. The R&D-based crop protection industry is strongly committed to developing, promoting and implementing IPM technologies and practices at all levels.

Applying integrated approaches to plant nutrition, which enhance soil productivity through a balanced use of mineral fertilizers combined with organic sources of plant nutrients, is detailed in an FAO document titled *'Guide to efficient plant nutrition management'*. As crops are harvested, the nutrients taken up from the soil are removed and if they are not replaced, this leads to 'soil nutrient mining', which gradually impoverishes the land. Although the recycling of available organic material (plant and animal residues) is a desirable feature of all farming systems, helping to retain moisture and build soil structure, it is now fully recognized that recycling alone does not provide adequate nutrient value for sustained, productive cropping.

The development of sustainable crop management procedures is an incremental process. It can only take place as a result of the full engagement of farmers and their supporters. The farm support industries therefore seek partnerships to foster the sharing of knowledge and experience that will result in the worldwide implementation of integrated farming practices.

Precision farming - a new agricultural revolution

Great efficiency gains can accrue by adopting input application techniques based on more site-specific information and appreciation of factors limiting crop development. As crop growth varies considerably due to local conditions, it is clear that applying inputs uniformly across large areas is not the right approach. Accurate field mapping with information collected from soil samples, pest monitoring and harvest yield data allows farmers to target the use of plant nutrients and crop protection products, leading to an efficient and judicious use of these products.

Highly developed systems use computers installed in farm machinery such as harvesters, fertilizer spreaders and crop sprayers, combined with mobile satellite Global Positioning Systems, enabling farmers in some situations to spatially vary the rate at which inputs are applied, thereby optimising the growth potential of the crop based on accurate determination of soil and crop needs.

Precision agriculture does not, of course, always require a highly sophisticated technological approach. The principle remains that farmers in all situations can significantly improve the precision of their management techniques by collecting and analysing information from soil and plant testing.

Modern biotechnology

Modern biotechnology is a new and important tool for the agri-food industry. It facilitates the improvement of a broader range of attributes in plants and food products and achieves this more rapidly and precisely than in the past. Industry sees biotechnology as offering real potential to contribute to meeting the needs of an ever-growing world population for affordable and wholesome foods produced in an environmentally sustainable way.

Business organisations, grouped within the International Agri-Food Network (IAFN) support rigorous testing and comprehensive regulatory systems, according to generally accepted scientific principles, to ensure the safety of new products. In return, agri-food businesses expect to be able to operate in a stable environment, regulated by a framework of internationally agreed rules based upon recognized scientific and economic principles. The implications of the use of modern biotechnology are global, so it is at this level that discussion must take place and balanced and responsible policy responses found.

Consumers drive the market

Just as farmers are the pivot of the agri-food production chain, consumers are key to what products are brought to market and how. Consumer demands naturally influence the nature, quantity, quality and diversity of future products. Consumers should have access to sufficient information to address their concerns and priorities about the products they buy.

The need for sustainable agricultural intensification

As the global population surges towards 8 billion in 2030, experts agree that food needs in developing countries will almost double, with most of the growth occurring among urban populations. Most new lands brought under cultivation are marginal and ecologically fragile and

cannot substitute for the land removed by urbanization and land degradation. Agriculture, which currently provides almost half of the world's food from irrigated land and accounts for 70 per cent of all water use, will increasingly be faced with a reallocation of water for municipal and industrial use.

'More food from existing land' is the challenge, making agricultural intensification a critical imperative. However, increasing population puts greater pressure on land use, and the amount of arable land per person is shrinking. In addition, rural depopulation leaves fewer farmers to meet the growing urban food demand. The worldwide average land area for grain production is currently 0.12 hectares per capita; some countries already have as low as 0.08 hectares, which in certain cases are projected to fall to less than 0.03 hectares per capita by 2050.

Agriculture, including pasture lands, dominates about 37 percent of the world's land area. Croplands occupy approximately 1.4 billion hectares, and extensive grazing, fallows, forestry and hunting-and-gathering utilize another 7.4 billion hectares. Collectively, these constitute both an environmental influence and an essential human resource. Protecting forests, watersheds, rangelands, and land prone to erosion, desertification and salinization depends on the development of suitable agricultural practices.

Sustainable agricultural intensification is a global technological and political challenge, requiring both innovative solutions and improved management techniques. The following are some examples of the contributions led by the farm support industries:

- New drought-resistant crop varieties that will contribute to water conservation.
- New crop varieties that can be grown out of season or on previously unproductive land, thus contributing to soil conservation. Some crops can be used to provide an additional source of food and income and stabilise the land or act as a green manure that improves the fertility and structure of the soil.
- Soil erosion by wind and water can be minimised through conservation or minimum tillage systems, a technique that stabilizes topsoil, reduces energy consumption, and enhances

yield. In most cases herbicides are an important tool to implement this soil management approach.

Topic 2.
Best practices in land resources management to achieve sustainable food cycles.

Land resources management for food production is, by definition, performed locally by farmers. Agri-food businesses, upstream and downstream of the farmer in the food chain, provide support through innovation, research, investment, information, education and extension. National government policies and guidelines encourage sustainable practices, for example to properly regulate agricultural inputs and food safety standards, often in partnership with the private sector. In addition, there are many other stakeholders, including local communities, who implement best management practices suitable for local conditions. The agri-food business sector, represented by the associations and federations in the International Agri-Food Network, help farmers to adopt sustainable land management practices in several ways:

- Promoting integrated farming systems like Integrated Pest and Plant Nutrition Management.
- Assisting in technology cooperation, especially through capacity building in developing countries.
- Investing in research and development in order to find new technologies and to improve products and practices.
- Supporting the practical application of innovative solutions by disseminating the results of research through education, extension and training schemes.
- Implementing voluntary initiatives and supporting community-based management programmes, such as the Australian 'Landcare' model.
- Encouraging inter-disciplinary and multi-stakeholder dialogue.
- Seeking public-private partnerships with relevant international agencies, governments, NGOs and other stakeholders worldwide.

Best practices are integrated approaches

Agri-food businesses are committed to developing products, technologies and methods to be used within the framework of modern integrated farming systems such as Integrated Crop

Management (ICM), which encourage a knowledge-intensive approach. Most actors throughout the food chain have developed sector-specific codes or guidelines of best management practice. Examples include: the FAO Code of Conduct on the Distribution and Use of Pesticides; IFA Guidelines of Best Agricultural Practice to Optimize Fertilizer Use for Asia and the Pacific, Europe, India, Latin America, North America and the Philippines, respectively.

Specific products and techniques and the amounts necessary vary from site to site. In some cases, the use of agricultural inputs may have environmental benefits: conservation or minimum tillage systems, for example, depend on the targeted use of herbicides. Alternative methods of cultivation and mechanical weed removal often cause topsoil wind and/or water erosion. Increasing yields through a combination of specific techniques and other agricultural inputs can protect marginal or fragile land that might otherwise be put into production, helping to maintain biodiversity and protect valuable ecosystems. (See Topic 1). Encouraging beneficial pest predators offers farmers additional tools in the fight against yield losses.

Sustainable use of agricultural water

One of the most important aspects of land management deals with the availability and use of water, particularly in arid and semi-arid zones. Agriculture accounts for 70 per cent of all water use, and almost half of the world's food now comes from irrigated land. In many areas agricultural production is limited more by lack of water than by lack of land. Agriculture will increasingly compete with municipal and industrial uses of fresh water, especially as growing affluence in developing economies drives consumer demands for water-intensive fruit and vegetable crops.

Water consumption and pollution are growing problems; by 2050 more than 40% of the world's population might be facing water scarcity. Efficient use of water and recycling strategies are necessary to conserve and replenish water resources. Pollution must be avoided to ensure access to clean drinking water. Encouraging the use of drought resistant crops in water deficit areas can help address these problems locally.

Case study: Plant breeding and biotechnology in developing countries

It is now widely acknowledged that conventional technology alone will not be able to meet food production demands and that agricultural biotechnology will be an essential and increasingly important component of any global food security strategy, in particular in developing countries. Yet most of the investments in biotechnology have been made by the private sector, and so there is an urgent need to build new global partnerships between public and private sectors in agriculture. Such partnerships are necessary to maximize the use of the limited resources assigned to agriculture, and to take advantage of potential synergies, in particular the transfer of technology as a pre-requisite for sustainable and productive agricultural systems in developing regions. In 1992 a new institution was developed: ISAAA (International Service for the Acquisition of Agri-biotech Applications) hosted by Cornell University, Ithaca, USA. The strategy of ISAAA is to provide the following services:

- Assist developing countries to identify biotechnology priorities and needs and to assess potential socio-economic impacts; monitor in industrialized countries the availability of proprietary biotechnology applications and evaluate their appropriateness for transfer; provide honest broker services by developing project proposals and implementation plans; match the needs of specific countries/institutions with those that can meet those needs, and to mobilize funds from donor agencies to implement projects.
- To assist developing countries on a full range of issues associated with the deployment of biotechnology, including biosafety, food safety, intellectual property rights, plant breeder's rights and the management of the deployment of resistant genes and assessing socio-economic impacts. So far, many important projects have been established and some of them are finalized. The main projects are:
  - The development of virus-resistant potato in Mexico.
  - The development and use of diagnostics for maize in Brazil.
  - The use of a selectable marker for cassava in Colombia.
  - Tissue culture propagation for banana in Kenya.
  - Virus resistance for sweet potato in Kenya.
  - Virus resistance for papaya in Indonesia, Malaysia, Thailand, the Philippines and Vietnam.

- Insect resistance for sweet potato in Vietnam.

Case study: Agsafe

'Agsafe', a subsidiary of Avcare (Australia's National Association for Crop Protection and Animal Health) dedicated to stewardship, conducts crop protection and animal health accreditation. Backed by the Australian Competition and Consumer Commission (ACCC), Agsafe actively promotes Integrated Pest Management (IPM) with an official certification programme applying to the safe storage, handling, transport and sale of agricultural and veterinary chemicals from the place of manufacture to the point of purchase by the end user.

In the past 10 years, over 14,800 individuals have passed the basic training stage, and more than 4,400 have completed stage II where IPM principles are stressed. This training is compulsory for all individuals who handle, recommend, sell, take responsibility for or offer advice on crop protection and animal health products.

As part of a commitment to ensure that Australian agriculture is fully sustainable, a new initiative, *'drumMUSTER'*, was developed by Avcare in collaboration with the National Farmers Federation, the Veterinary Manufacturers and Distributors Association and the Australian Local Government Association, on a co-regulatory basis with the ACCC. Tailored to conditions in local councils, *drumMUSTER* is based on the collection of non-returnable rigid metal and plastic containers used in the packaging of crop protection and animal health products.

Case Study: Best agricultural practice for plant nutrients

Until the late 1970s, most industrially produced fertilizer was applied in developed countries. Consumption has now stabilized in these regions but has risen dramatically in developing countries, where the trend is likely to continue as population growth and increasing urbanization causes an escalating demand for food. Land degradation is often caused by over-cultivation and progressive impoverishment through 'soil nutrient mining' when nutrients removed by the crops are not replaced.

The optimization of crop nutrition through the integration of mineral fertilizers with organic sources of plant nutrients enhances soil fertility, maximizes nutrient recycling, improves water retention and reduces losses of nutrients to groundwater and the atmosphere. As the area of additional cultivable land is limited, careful plant nutrient management is an essential component in ensuring sustainable and productive farming systems. The development of more efficient fertilizer products and application techniques is a high priority for the fertilizer industry.

Training programmes for extension agents, fertilizer dealers and retailers, who are best placed to give advice on fertilizer use to farmers, are coordinated by the fertilizer industry in many countries and 'best agricultural practices to optimise fertilizer use' are being developed and shared, particularly in the techniques of Integrated Plant Nutrition (IPN). For more than 30 years the international fertilizer industry has also been a major contributor to many investment, technology and extension programmes in developing countries, often in cooperation with international agencies such as FAO and the World Bank.

Topic 3.
Knowledge for a sustainable food system: identifying and providing for education, training, knowledge-sharing and information needs.

Agri-food businesses are key actors in ensuring that food is produced and distributed in a safe, economic and sustainable way in response to consumer demand. Research and development, and the communication of such knowledge through education, training and information technology are key ingredients in achieving sustainable agri-food systems.

The agri-food industry sector contributes by:

- Assuming a continuing role in agricultural research and development.
- Adopting a growing role in training, capacity-building and technology cooperation.
- Investing to improve plant varieties and seeds, stimulate biotechnology, maintain plant nutrition, crop protection and animal health in an integrated approach to farm management.
- Improving the quality and variety of food and agricultural products.

- Aiming for closer cooperation and co-ordination among the various sectors of the agri-food chain.

Knowledge is an integral part of agriculture

Developing agricultural technologies and techniques provides support for farmers and others in the agri-food chain to adopt sustainable practices. 'Precision' agricultural methods, for example, are based on research to increase understanding of the variations that may exist within a single field. Such knowledge may then be translated into more targeted use of essential inputs, leading to economic and environmental benefits. To capitalize on such advances, farmers must be encouraged to put them into practice. There is considerable room for improvement in most agri-food production systems to improve efficiency and environmental performance.

The activities of the participants in the International Agri-Food Network extend throughout the world, among their broad constituencies of member associations, companies and institutions. Continued research, education, information and extension activities are important tools to help farmers identify and implement the best solutions for local conditions and circumstances.

Research and development

The agri-food sector has followed the general trend in which public investment has diminished while private investment has increased. The organization and structure of applied research in this sector has changed significantly in the last two decades, particularly in many developing countries, as governments have progressively withdrawn from supporting such work. In order for the private sector to meet this larger and growing responsibility, it is necessary for governments to create legal and institutional frameworks conducive to private sector activities. Security of land tenure, protection of intellectual property rights, availability of credit for rural development, a favourable investment and regulatory climate, and expeditious customs procedures are just some of the conditions required.

Research activities of the participants in the International Agri-Food Network vary widely, based on the specific requirements of each sector. The crop protection and plant breeding industries, for example, rely on product innovation. Companies typically invest more than 10% of annual turnover in private research and development. Products aim to secure yields across a diverse range of crops within the framework of the principles of Integrated Crop Management (ICM) – see Topic 1. Approximately ten years are devoted to the development of every crop production product that comes on the market. This costly and careful development requires a great deal of vision as companies must forecast a decade in advance the type of demands that agricultural producers will have.

Research in meat and milk production and on processing methods is also extensive, both under public sponsorship, for example in universities and research institutes, and by the private sector. The same is true for cereals and cereal products. Enhanced plants are an exciting innovation. Plants can be given enhanced nutritional values, such as rice that has been developed with higher levels of iron and vitamin A or may be developed to be resistant to certain plant diseases or pests. Enhanced plants also have environmental benefits: for example, drought resistant plants will one day facilitate water conservation.

Throughout history, domestication, selection of desirable seeds, and hybridization have improved plants. Techniques available today are much more targeted and effective in achieving the desired traits. Without research, recent leaps forward would be impossible. New varieties are therefore increasingly important in precision management schemes, and they are being adapted to meet specific soil conditions and pest threats.

Fertilizer research focuses on finding ways to target applications more precisely and to minimize nutrient losses. One element of current research is to develop 'controlled-release' fertilizers to enhance the uptake of the nutrients by crop plants while reducing emissions and leaching. Nitrification and urease inhibitors can also improve the efficiency of nitrogen use, but due to the greater costs of production compared to conventional fertilizers, the use of such 'specialty

fertilizers' is mainly restricted to high-value crops, horticultural applications, specific cultivation systems and non-agricultural sectors.

Researchers also seek to improve application techniques in cooperation with the manufacturers of agricultural machinery. The development of precision agricultural methods, for example, utilizes the knowledge and information gained through accurate field mapping and combines these benefits with the use of variable-rate technology to apply inputs more efficiently.

The public sector also has an important role to play, both in the research and development phase, and in the communication of the benefits to farmers through extension, education and information activities. At international level, the International Agri-Food Network supports the work of the Consultative Group on International Agricultural Research (CGIAR) whose mission is to contribute to food security and poverty eradication in developing countries through research, partnership, capacity building, and policy support. The CGIAR promotes sustainable agricultural development based on the environmentally sound management of natural resources. CGIAR centres conduct research programs in collaboration with a full range of partners and sponsors in an emerging global agricultural research system, including foundations and research centres partly or wholly supported by agri-food industries.

Education

One of the key roles of the associations representing the agri-food business sector is to bridge the gap between the commercial communication of companies – which is often product-specific – and the need for a more comprehensive and global information provision. Publications are available on a wide-range general issues facing each sector. These documents are useful for educators and students as well as those involved in extension work. For example, the crop protection industry and the seed industry have two joint publications: *'Seed treatment, a tool for sustainable agriculture'* and *'Industry guidelines for good use practices and standard requirements in the use of seed treatment'*.

Agri-food sectors companies also make a valuable contribution to agricultural education through work programmes and student placements to provide training and practical experience on many aspects of farm input supply, food manufacture, processing and marketing.

It should be acknowledged that educational needs differ from place to place according to the degree of sophistication of food production and processing, both in terms of technology and market development, requiring educational programmes tailored to specific local conditions and communities. Through its extensive network in many developing countries, FAO is particularly well positioned to perform such outreach functions.

Extension and training

Agri-food industries represented by the International Agri-Food Network do much more than develop products designed to perform primary functions while protecting human health and the environment. Even the best products can, if handled or used improperly, have unintended and undesirable consequences. For this reason, the relevant actors in the food chain strive to ensure that resellers, farmers and other end-users understand how to use all purchased products in the most effective and safest ways. Through practical training programmes, distribution of publications and greater use of the Internet, these efforts extend throughout developed and developing countries.

Most sectors publish guidelines on the safe storage, transport and use of the products that help ensure sustainable food supplies. Some are involved directly in training and endorsement schemes to ensure that regulations and generally agreed voluntary codes of conduct and best practice are respected. For example, in partnership with other stakeholders, a group of European food retailers are currently outlining a Code of Good Agricultural Practice that must be respected by farmers who intend to market their produce through this channel, and which will also apply to non-European suppliers.

Many of the activities of the companies and associations represented by the International Agri-Food Network are aimed at promoting a variety of practices and technologies that contribute to sustainable agriculture. Various forms of integrated farming systems, for example, Integrated

Pest and Plant Nutrition Management, are being researched and established to help farmers operate efficiently. The federalised structure of most industry associations also contributes to the extension process. Information collected at international level can be transmitted through the network, translated and adapted for local conditions. In addition, case studies and practical experience are communicated through the global network, providing useful examples that may be adapted for use in other areas.

Safe Use Initiative

The Global Crop Protection Federation (GCPF) operates a 'Safe Use Initiative' to promote the safe use and handling of crop protection products at every stage. Begun in 1991 in Guatemala, Kenya and Thailand, the Safe Use Initiative now operates in some 25 developing countries. Australia has a long-running programme, and the initiative is now spreading to Europe.

The concepts and principles behind the Safe Use Initiative are consistent across all projects, although they are designed and run locally. Partners include unions, international organizations, aid donors, local and national government agencies and NGOs. The local emphasis ensures that the principles of Safe Use are translated into practical terms. For example, in Southern Africa communities redesigned safety clothing to take into account the taboo on women wearing trousers. The use of radio and school plays in some countries helps to avoid limitations of illiteracy as well as drawing on the involvement of families and communities in agricultural production.

Self regulation, certification and training

In both developed and developing countries, cooperative efforts are being made to ensure that high standards are set and respected for activities in the agri-food sector. In the United Kingdom, for example, the British Agrochemicals Association (BAA), the National Association of Agricultural Contractors (NAAC), the National Farmers' Union (NFU), the United Kingdom Agricultural Supply Trades Association (UKASTA) and the Association of Independent Crop Consultants (AICC) work together to support BASIS, an independent organisation set up in 1978 to establish and assess standards in the pesticide industry. BASIS standards were recognised by law in 1986 and BASIS Storekeeper and Field Sales and Technical Staff certificates are now

legally required by all those involved in the storage, sale and supply of pesticides. BASIS also runs the Fertiliser Advisers Certification and Training Scheme (FACTS).

Both BASIS and FACTS are based on similar principles:

- Ensuring reliable advice on products and their use
- Raising training and technical standards
- Promoting environmentally-friendly farming
- Meeting the requirements of regulatory frameworks without specific legislation.

Other successful programmes

The International Agri-Food Network is actively exploring with representatives of the Australian 'Landcare' organizations opportunities to extend the land stewardship and community-oriented development philosophy of the Landcare movement to other countries. The scheme has flourished over the last decade with multi-stakeholder support from government, farmers' organizations, research and environmental conservation organizations, the private sector and NGOs.

Widely acknowledged as a successful example of the 'bottom-up' approach, Landcare projects provide a unique opportunity for the agri-food sector to contribute expertise to the solution of local problems by local problem solvers. The innovative solutions being found by rural communities participating in over 4,000 Landcare groups often put into practice concepts such as Integrated Crop Management. Agri-food businesses can provide know-how and technology, but local or regional communities are best positioned to apply these appropriately. The success story is spreading, most recently to South Africa, which began its own Landcare programme in 1998.

Topic 4.
Globalization, trade liberalization and investment patterns: economic incentives and framework conditions to promote sustainable agriculture.

Sustainable agricultural development will best be achieved through market-oriented approaches that favour enterprise, economic growth and social and environmental responsibility. In an

increasingly global economy, this means stimulating entrepreneurship through a progressive elimination of barriers to international trade and investment in all sectors. Open markets improve the quality of life in both developed and developing countries by promoting technological innovation, cooperation and transfer.

Greater access to international markets, trade, and capital will ultimately benefit *all* countries and stakeholders, while it is recognized by the agri-food business sector that opportunities for economic growth and prosperity must be accompanied by an awareness of certain social and environmental responsibilities. The role of agri-food businesses – as part of the broader business community – lies in working to ensure that the benefits of an open market system reach those in developing countries where poverty is the greatest threat to sustainable development. Establishing a sound, global framework for a dynamic market to operate fairly will make a significant contribution to lift communities out of poverty.

Governments are therefore encouraged to adopt strong policies to progressively reduce – and ultimately eliminate – agricultural price-support mechanisms, export subsidies and other agricultural trade barriers. Governments should supplement such reductions with policies that promote private sector initiatives, particularly to help small businesses become or remain competitive in open markets (see page 15). Communities, businesses and markets also need time to adjust, in order to take full advantage of the benefits derived from a smoothly operating open market.

Proposed agriculture policies

In many countries, the first priority for the farm sector is to become economically sustainable. Economic viability is usually derived from some degree of trade in agricultural products, at local, regional, national and/or international level. Such trade can help achieve the goals of sustainable agriculture: improving living conditions in rural areas, particularly in developing countries; ensuring increased food quality and quantity; providing employment opportunities; contributing to the protection of natural resources and the environment. Economic policies that promote open and fair trade of agriculture products are therefore in the interests of all stakeholders.

What are the key economic policies that promote the fair and open trade of agriculture products?
:

- Allow the alignment of food prices at world market levels;
- Harmonize food regulatory, customs, safety and other control systems;
- Progressively dismantle government price support systems and other price-distorting measures – for example, both export subsidies and import tariffs - with changes made within a reasonable timeframe to allow farmers, agri-food businesses and the market itself time to adjust;
- Promote private initiatives (rather than *public* initiatives, which distort prices) helping small farmers buy, sell, and mortgage land, purchase seed, fertilizer and equipment, gain access to markets and credit, and remain competitive as markets become more open;
- Promote trade and investment in the agri-business sector, which will in turn increase technological innovation;
- Promote best farming and environmental practices; develop and adopt cost effective, scientifically sound and environmentally sustainable food products and production techniques;
- Create channels through which innovations in good farming and environmental practices and sustainable food production can reach all economies; and
- Develop an infrastructure that ensures the safe and efficient production, processing, and transportation of food within and between countries.

The case for trade liberalization and economic growth

Under current trade policies, trade in agricultural and processed products has increased steadily. Despite these favorable trends, government intervention in the agricultural sector is more intrusive than in any other sector. According to the OECD, the level of protection and support of

agriculture exceeds 70% in some countries. Export subsidies, for example, tend to destroy markets in developing countries as they depress world prices too low for local farmers to compete.

The adverse impact on trade is not only a matter of concern for shareholders of multinational corporations. Although developing countries argue, with some merit, that liberalization of international trade has not yet benefited them to the same extent as developed countries, trade barriers in the agriculture sector adversely affect *all* countries by impeding innovation, investment and economic growth.

Innovation brings best practices in agriculture to developing countries, thereby increasing food production efficiency and improving food quality. Indeed, a varied diet is now available and affordable to many more people, and the numbers who suffer a nutritional deficit is declining, although still unacceptably high. The development of scientifically sound and environmentally sustainable food products and production techniques results in a reduction of waste and the conservation of fragile lands and natural resources benefits the environment in all countries - see Topic 1.

Economic growth in the agriculture sector provides opportunities for the poor in developing countries by providing increased access to food, land, income, employment, financial services, technology, and capital for community services and education. Strengthening the rural economy also facilitates the conservation of rural landscapes and cultural heritage. Although economic growth has been slow to reach the poorest in some areas, it will in time improve the living standards in both developed and developing countries.

For example, the crop protection industry considers several benefits that would accrue from a proposal to eliminate trade tariffs on its products:

- Stimulation of economic growth in the participating countries;
- Improved access for farmers worldwide to crop protection products;
- Development of more new products with improved environmental impact;

- Additional industry resources devoted to regulatory and environment compliance activities
- More resources for training crop growers on safe handling and use.

In short, removing trade barriers in the agriculture sector is *crucial* to achieving the economic, social, and environmental goals of sustainable agriculture, and is necessary to expand the benefits of fair trade to developing countries.

Business Initiatives and Success Stories

The agri-food business sector recognizes that all stakeholders in the food chain have social and environmental responsibilities in addition to their economic priorities. There are numerous examples of agri-food businesses that have tackled complex challenges in a dynamic, innovative and successful manner by forming partnerships with governments, non-profit organizations, scientists and technologists.

Many agri-food businesses have undertaken voluntary initiatives to improve the performance of their industry and benefit local communities, consumers and the environment. For example, the International Fertilizer Industry Association (IFA) is working with the UN Environment Programme (UNEP) to pool and disseminate knowledge and expertise on environmental management systems in the production phase, and to develop and transfer information on the most efficient distribution and use of plant nutrient resources, especially in developing countries.

Input supply companies in Zimbabwe have joined with the Citizens Network for Foreign Affairs, a US-based non-profit agricultural development organization, in an innovative public-private partnership to improve smallholder farmer productivity and incomes. Careful analysis of the plight of subsistence farmers in Zimbabwe revealed that lack of access to inputs is the largest obstacle preventing them from increasing their incomes. The input supply companies had historically found it unprofitable to extend their distribution systems to remote smallholder areas due to the absence of well-managed village businesses to act as intermediaries. With funding from the US Government, CNFA is providing business training to village entrepreneurs to equip them to perform successfully as distributors for the supply companies. For their part, the

companies are providing inventory credit (backed by 50 percent guarantees from CNFA) to these entrepreneurs to assist them in stocking inputs, and training in the proper handling and use of the inputs. Together, the companies and CNFA are creating a sustainable commercial chain of supply to expand dramatically the flow of inputs into smallholder farmer areas.

As a result of dialogue with consumers, farmers and others, the dairy sector has recognized the importance of developing and expanding the market for its products, while responding to public concerns on animal health and welfare, livestock waste, environmental health and food safety. One area of growth in some regions is in 'organic' dairy products that attract higher prices in the market by differentiating specialty foods produced under certain conditions.

The crop protection industry engages in a number of stewardship programmes -- mostly in developing countries -- to ensure the proper use and handling of its products all the way through the distribution chain. In some countries, dealers and handlers obtain licenses to operate only after achieving specific industry certification. The industry also actively encourages and, in some cases, directly participates in the recycling of container waste - promoting environmental protection is a key element of these initiatives. Crop protection products are now designed to fit into Integrated Pest Management programmes instead of standing alone. To reflect this changing emphasis from specific products to the overall service of crop protection, some companies have changed their organizational structure: departments are organised around the pest problem to be addressed, not a specific product to sell.

Other agri-food businesses have dramatically reduced energy and raw material consumption in production and manufacturing, controlled emissions of waste, conducted research to identify new products and processes without undesirable consequences, developed codes of conduct and good practice, and contributed skills, resources and investment to the marketplace (see Topic 2.) The development of crop plants with enhanced resistance characteristics, for example, may lead to a decrease in the use of certain crop protection products. Such initiatives foster innovation, enterprise and economic incentive among producers worldwide, which ultimately benefit consumers through lower prices, a greater quantity and diversity of food available and a healthier environment.

Conclusion

A fair and open trade policy is necessary to achieve economically viable agriculture that is based on environmentally sound practices, which in turn fosters the economic, social and environmental benefits of sustainable agriculture. An additional benefit of an open trade policy is that it provides agri-business with the financial resources to undertake voluntary initiatives and form partnerships that promote sustainable agriculture.

Indeed, the agri-food business sector, farmers, NGOs and governments share many common interests. Increased dialogue and cooperation between relevant stakeholder groups is required to identify and promote opportunities for joint initiatives and partnerships in support of sustainable agriculture.